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ABSTRACT

Because preparing people for the world of work remains the primary purpose of vocational education, the behaviorist approach is the preferred learning theory on which to base vocational instruction. Other instructional activities aligned with behaviorism that are regularly used by vocational educators are active responding, required practice, and shaping. These activities, along with task analysis, behavioral objectives, modular instruction based upon linear programming, criterion-referenced evaluation, and similar activities, are directly aligned with competency-based vocational education. Thus, not only should vocational educators base their instructional programs on the principles of behaviorism, but they should also incorporate current findings in the area of behavioral research into their presentation of material. (MN)

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A RATIONALE FOR THE USE OF BEHAVIORISM IN VOCATIONAL EDUCATION

by

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INTRODUCTION

Vocational education, through the vigorous efforts of Prosser and Snedden, received federal support on February 23, 1917, with the passage of Public Law 347, The National Vocational Education (Smith-Hughes) Act (Phipps, 1980:13). Since its inception, the mission of vocational education has been to provide training and retraining for work-related knowledge, skills, and attitudes. Although the competencies that are required for work have changed in the last 68 years, the goal of preparing people for the world of work has remained a constant for vocational education.

Due in part to its strict objectivity and effectiveness, the behaviorist approach, as evidenced by the work of Skinner, is selected as the preferred learning theory. A behaviorist rationale regarding the delivery of vocational education is described by Phipps (1980:15) as

> the instruction, the methodology, the program, and the courses are based on the problems involved in the various tasks in the . . . world of work. . . . [and] emphasize learning by doing.

VOCATIONAL EDUCATION ACTIVITIES SUPPORTING THE USE OF BEHAVIORISM

Vocational educators do not, because of pragmatism, support the concept of learning by doing only as a matter of choice. This particular rationale toward instruction is gaining such support that learning by doing and its

corollary, competency based education, are receiving official mandate. Accordingly, components of the competency movement, an outcome of using a behaviorist approach toward instruction, will be listed and detailed.

Task Analysis

Task analysis involves the investigation of terminal behavior and the arrangement of that complex behavior into its subsequent enabling behaviors. A usual part of the vocational evaluation process (Leconte, 1985:42), task analysis has been promoted by Gagne, whose work "has been especially helpful in decomposing various educational competencies into a hierarchy of subskills, noting how one depends on another" (Bower and Hilgard, 1981:538).

The arrangement of viewing complex terminal behaviors as a series of simpler enabling behaviors is the rationale advanced by the United States Department of Labor for their quantification of job skills into a numeric hierarchy. The Labor Department purports that, because "every job requires a worker to function to some degree in relation to data, people, and things", a numeric code has been developed such that "a separate digit expresses the worker's relationship to each of these three groups" (Dictionary of Occupational Titles, 1977:xvii). Accordingly, data refers to the cognitive domain, people refers to the affective domain, and things refers to the psychomotor domain. Thus, vocational instructors, both by their own efforts toward task analysis

and by following government standards, can determine the degree of cognitive, affective, and psychomotor skills to teach based upon task analysis of terminal behavior.

Behavioral Objectives

Behavioral objectives are formal statements of what observable behavior a student will be able to do as a result of instruction. The use of behavioral objectives requires the identification and definition of instructional intentions (Gronlund, 1981:60) and causes an instructional shift from the process of instruction to the outcomes of instruction (Gronlund, 1978:1).

Taxonomies of educational objectives are generally attributed to Bloom (cognitive), Krathwohl (affective), and Simpson (psychomotor). These taxonomies have been quite useful when developing behavioral objectives. Gagne and Briggs (1979:125), however, have provided an alternate schema of human capabilities that has proven most effective when proposing instructional outcomes. The effectiveness and also the simplicity of only nine action verbs (i.e., discriminates, identifies, classifies, demonstrates, generates, originates, states, executes, and chooses) provides a powerful degree of precision when describing the full range of observable human behavior. And, in view of task analysis, terminal behavior can be described in terms of a hierarchy of its many component enabling behaviors.

Modular Instruction Based Upon Linear Programming

Linear programming, an approach to instruction associated with Skinner and similar behaviorists, is commonly used as an instructional strategy for vocational purposes. Linear programming is described by Gronlund (1981:9-10) as

> a carefully graded set of materials, in continuous order, that the learner works through step by step. Typically the steps are so small that the learner has a high rate of success in answering the questions at each step. This high success rate is designed to reinforce correct responses and to motivate the learner to continue.

Vocational education, in recognition of the efficacy of task analysis and the use of behavioral objectives and other strategies associated with behaviorism, regularly presents curricular materials in the form of modules which are based upon a linear programming approach toward instruction. Terminal behavior is presented as a succession of smaller enabling behaviors. Enabling behaviors are presented in the module as a series of smaller behaviors of appropriate difficulty. The summative effect of modular instruction based upon linear programming is to continually reinforce correct responses by gradually developing student knowledge, attitudes, and skills.

Criterion-Referenced Evaluation

Competency based vocational education, when following prescribed methodology, uses criterion-referenced evaluation instead of norm-referenced evaluation. Norm-referenced evaluation, commonly using the bell-shaped curve of random

distribution, is designed to assess student performance as a relative position within a group's distribution of measures. Criterion-referenced evaluation, however, is based upon an "absolute standard of performance rather than a relative standard" (Gronlund, 1981:524). The "absolute standard" is usually an industrial standard that was determined during collaborative efforts between vocational educators and industrial representatives. Thus, students are assessed as to whether or not they meet a prescribed criterion. Paralleling the military terms "go" and "no go", criterion-referenced evaluation does not promote competition. Instead, criterion-referenced evaluation reinforces only appropriate behaviors and does not reinforce competition among students.

CONCLUSION AND RECOMMENDATIONS

Other instructional activities that are aligned with behaviorism and are regularly used by vocational educators are active responsing, required practice, and shaping. These activities, along with task analysis, behavioral objectives, modular instruction based upon linear programming, criterion-referenced evaluation and similar activities, are directly aligned with competency based vocational education. Sobeih (1984:4) describes the rationale behind the competency movement as being

> toward a stronger emphasis on performance and product. An increasing number of people in the teaching profession have become unwilling to accept the assumption that simply because someone 'knows' something he can necessarily apply his knowledge.

Accordingly, it is suggested that the learning theory most suited to vocational education is behaviorism. It is specifically suggested that operant conditioning, based upon Skinner's work, is the most effective behaviorist methodology.

However, continued efforts must be made to determine the exact parameters of effective instruction. As Aleamoni (1983:1) stated

> If one assumes that the purpose of education is to change student behavior as a result of some definite course of instruction, then an objective of educational research should be to determine what procedures or techniques best produce the desired behavioral changes. If a course has been effective, then there could be a large number of components in that course contributing to its effectiveness.

Unfortunately, "research findings on effective instruction are underutilized" (Gee, 1984:1). Thus, it is recommended that not only should behaviorism, as it is currently known, be employed as the most effective learning theory, but it is also suggested that instruction should incorporate current research findings that prove to be valid and reliable.

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